Technical Disclosure Commons

Defensive Publications Series

June 2020

ENABLE BEST RF PERFORMANCE BY SENSOR COMBINATION ALGORITHM

HP INC

Enable best RF performance by sensor combination algorithm

FCC/CE SAR is mandatory requirement for NB/tablet products, we need to reduce power to pass SAR spec, that also degrade RF performance, our mitigation plans can recover full RF performance to ensure our products with the best user experience.

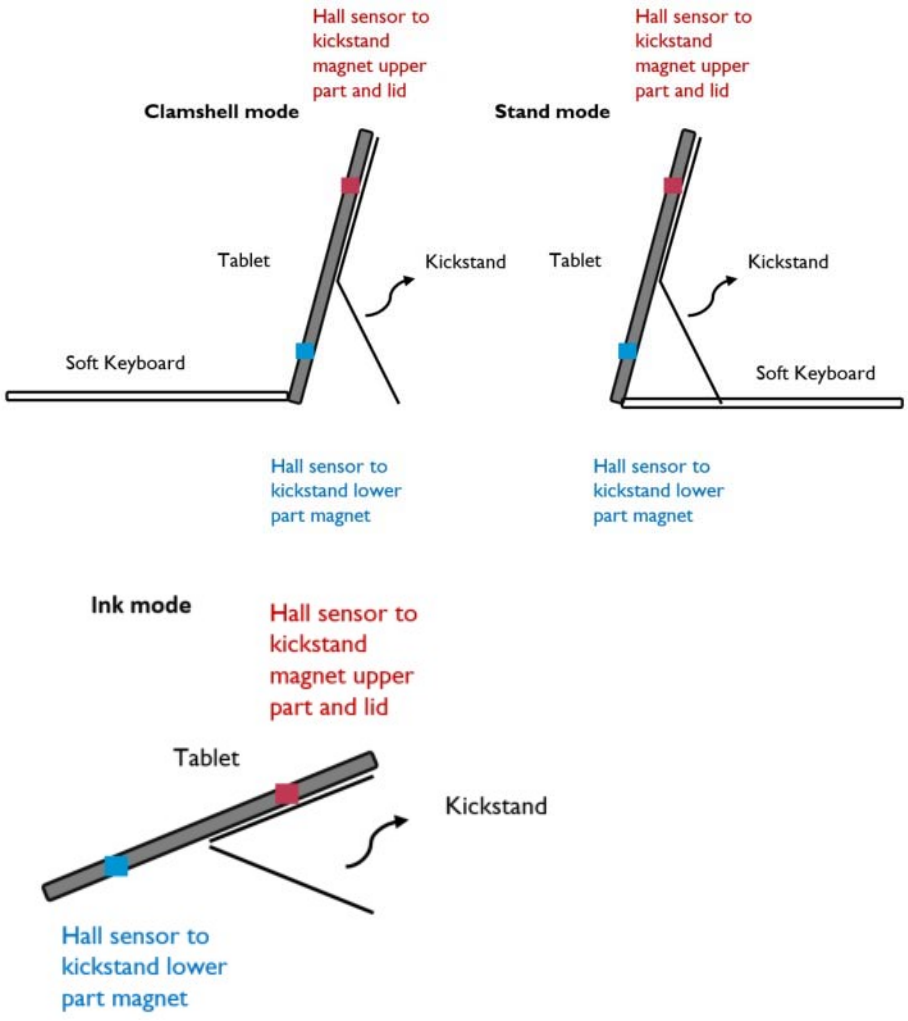
Conventional Approach

Use proximity sensor pad around antenna, this is not only expensive solution but also hurt Screen to Body Ratio a lot, not to mentioned we can't use this solution on premium ID, for example: slot antenna.

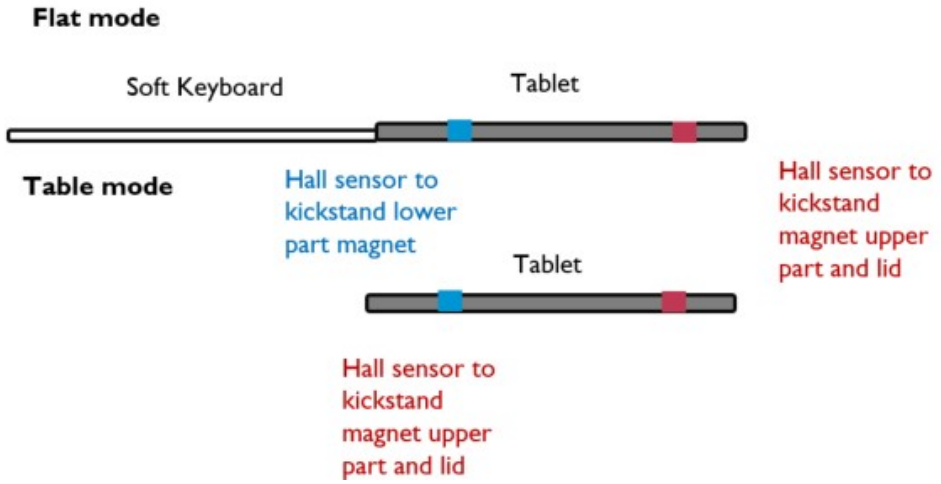
New Approach

This new approach can offer almost full RF performance, also can be adopted into any form factor and cost effective. Take tablet project as an example as below-

Use two hall sensors to know what mode we are using, once we confirm Clamshell/Stand/Ink mode, RF module output full power;

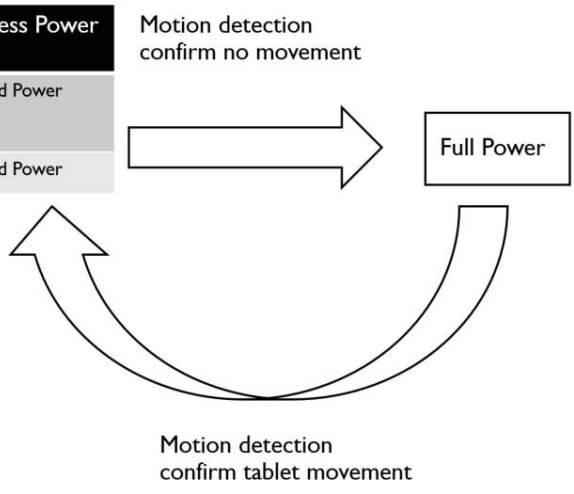


Once we detect flat/tablet/close lid mode, we reduce power, then monitor movement on unit, if confirm no movement, tablet can recover to full power to get the best performance.



Operating Mode Definition	Trigger Mechanism and Lid Angle Description	Wireless Power
Lid Close Mode	Lid angle < 10° Lid Hall Sensor triggered and soft keyboard attached	Reduced Power
Clamshell Mode/ Stand mode	Hall sensor to kickstand upper part triggered and hall sensor to kickstand magnet released with soft keyboard attached	Full Power
Ink Mode	Hall sensor to kickstand upper part triggered and hall sensor to kickstand magnet released without soft keyboard attached	Full Power
Tablet Only	Detached soft keyboard	Reduced Power

Operating Mode Definition	Trigger Mechanism and Lid Angle Description	Wireless Power
Lid Close Mode	Lid angle < 10° Lid Hall Sensor triggered and soft keyboard attached	Reduced Power
Tablet Only	Detached soft keyboard	Reduced Power



Disclosed by Kun-Jung Wu, Richard Liu and Wallace Huang, HP Inc.